

Interview Summary	Application No.	Applicant(s)	
	10/688,193	WOODS, VIRGIL L.	
	Examiner	Art Unit	
	Suzanne M. Noakes, Ph.D.	1656	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Suzanne M. Noakes. (3) _____
 (2) Stephen Reiter. (4) _____

Date of Interview: 07 May 2007.

Type: a) ☒ Telephonic b) ☐ Video Conference
 c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☐ No.
 If Yes, brief description: _____.

Claim(s) discussed: 1-42.

Identification of prior art discussed: _____.

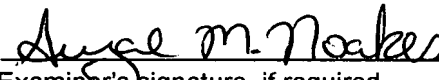
Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The Examiner called Mr. Reiter with proposed claim language that would place the claims in condition for allowance. Mr. Reiter indicated that he would consult the inventors/Applicants and would contact the Examiner with a response in due time. See attached Proposed Examiner's Amendments (Revised Draft).

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


 Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent and Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PROPOSED EXAMINER'S AMENDMENT

REVISED DRAFT (May 7) ONLY

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with *** on ***.

The application has been amended as follows:

In the claims:

Rewrite claim 1: A method for improving the success of crystallizing a protein or improving the quality of a crystallized protein for crystallographic structure determination thereof, said method comprising:

(a) identifying at least one unstructured region of said protein by hydrogen exchange analysis;

(b) deleting at least one unstructured region of said protein identified by hydrogen exchange analysis; and

c) subjecting to crystallization and structure determination one or more modified form(s) of said protein according to step (b).

- Cancel claims 43-48.

Restriction/Election

2. The requirement for an election of species between endopeptidases and carboxypeptidases is hereby withdrawn. Specifically claims 18 and 19 have been rejoined. Furthermore, the restriction requirement between claims 1-43 and claim 44 is hereby withdrawn. However, it appears that claim 44 is substantial duplicate of claims 1 and 41 and thus, as noted above, has been cancelled. The restriction requirement between claims 1-43 (Group I) and claims 45 (Group III), 46-47 (Group IV) and 48 (Group V) as detailed in the Office action dated 04 April 2006 is maintained. Said claims have been cancelled by Examiner's amendment as noted above.

Reason's for Allowance

3. The following is an examiner's statement of reasons for allowance: The science of protein crystallography is at best unpredictable and more of an art than a science. Many different factors contribute to the unpredictability and these are outlined, for example, in MacPherson, A. (Current Approaches to Macromolecular Crystallization, European Journal of Biochemistry, 1990, Vol. 189, pp. 1-23), who states there are 25 different parameters that influence the crystallization of any given protein, however, knowing which ones are the essential factors for any particular protein is never clear and can not be inferred. There are some techniques which are known that may increase the chance that protein will crystallize such as manipulating the N-terminus or C-terminus which are often times are not well ordered and at times can preclude crystallization of a protein. However, what makes the instant methods novel over the

prior art is the ability to determine exactly, down to single amino acids, which regions are unstructured. This gives an enormous advantage to the protein crystallographer to improve the chances that a protein might crystallize because it is well known that unstructured regions are not limited to only the C- or N-terminus' and often times can be found anywhere in a protein. These unstructured regions are often times considered to be one of the largest obstacles to successful crystallization. However, to date, other than protein crystallography itself, or NMR methods, which are methods to determine the 3-D structures which would then give clues to where the unstructured regions exist, there are no other methods to detail these unstructured regions. Herein lies the problem, however, when the protein a skilled artisan is working with does not crystallize and there is no analogous structure, how does one know where the unstructured regions exist, or if they exist at all? Although the method of hydrogen exchange analysis has been known for many years, the method has mainly been utilized in determining the steps involved in protein folding. The leap from protein folding to protein crystallization and improving the chances that a protein will crystallize or improving the quality of a protein that has already been crystallized by deleted the unstructured regions is both novel and non-obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suzanne M. Noakes, Ph.D. whose telephone number is 571-272-2924. The examiner can normally be reached on Monday to Friday, 7.00am to 3.30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.
